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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,680	02/13/2004	Nobuyuki Eto	Q79867	5870
23373	7590	05/03/2007		
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER LAZORCIK, JASON L	
			ART UNIT 1731	PAPER NUMBER
			MAIL DATE 05/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/777,680

Applicant(s)

ETO ET AL.

Examiner

Jason L. Lazorcik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>02/12/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. While Applicants disclosure provides sufficient basis for a limitation wherein the glass substrate has a thickness of "0.2 to 0.9 mm" or alternatively a thickness of "0.2 to 0.6 mm", Examiner has found insufficient support for the present limitation wherein the glass substrate has a thickness of "0.6 mm or less".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US 6,119,483) in view of Aratani (US 4,671,814). Briefly, Takahashi teaches a method for processing a glass substrate for use as a magnetic disk.

With respect to Claims 1 and 2, Takahashi teaches that the glass substrate used for manufacturing a magnetic disk, after completion of grinding, polishing, and washing steps is subjected to a chemical reinforcement step. According to this process, "the glass substrate which had been washed was heated in advance to 300°C, and immersed for about 3 hours in a chemical reinforcement solution preliminarily heated to 400°C, said solution having been prepared by mixing potassium nitrate (60%) and sodium nitrate (40%)". Further, the reference indicates that "When the glass substrate is immersed in the chemical reinforcement solution, lithium ions and sodium ions on the surface layer of the glass substrate are substituted by sodium ions and potassium ions in the chemical reinforcement solution, respectively, whereby the glass substrate is reinforced" (Column 10, Lines 50-67).

The immediate disclosure is understood to provide a method for processing a glass substrate for a magnetic disk wherein the glass substrate contains alkali ions (lithium and sodium ions) on the surface layer of the glass substrate. The process using a first alkali ion (sodium) present as a molten salt of sodium nitrate and having a first ion radius greater than the smallest ion radius of the smallest alkali ion (lithium) among the

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alkali ions contained in the glass substrate. The process further uses a second alkali ion (potassium) present as a molten salt of potassium nitrate for supplying the second alkali ion.

With respect to Claim 3, the immediate reference teaches that an aluminosilicate glass to be used for chemical reinforcement contains as principle components 57 to 74% SiO_2 , ... 3 to 15% of Al_2O_3 , 7 to 16% of Li_2O and 4 to 14% of Na_2O , each in terms of mole percent" (Column 9, Lines 25-31). The reference continues with a preferred example of ~67% SiO_2 , ~1% ZnO_2 , ~9% Al_2O_3 , ~12% Li_2O and ~10% Na_2O , each in terms of mole %. The cited example composition for the aluminosilicate glass reads directly upon the claimed concentration ranges for each constituent.

Regarding Claim 4, the reference indicates a disk thickness of 1.5 mm which is understood by the Examiner to be approximately of the substrate thickness presently claimed. Absent any compelling and unexpected results to the contrary, it is the Examiners position that in light of the Takahashi and Aratani disclosures, the use of a substrate with a thickness of "0.6 mm or less" is merely an obvious extension the prior art of record. Specifically, it would be obvious to one of ordinary skill in the art to seek the use of a thinner substrate both as a means to conserve raw materials (reduce price per unit) as well as to produce a more compact product.

With respect to Claim 6, Takahashi indicates that "the magnetic disk is produced by forming a thin film such as a magnetic layer on a substrate and as the substrate for it, ... (a) glass substate has been employed" (Column 1, Lines 21-23)

Takahashi teaches that the treatment process as indicated above proceeds by a single dip in a molten solution or mixture of potassium nitrate (60%) and sodium nitrate (40%). As such Takahashi fails to explicitly set forth a scenario wherein the processing of the glass substrate is effected by the use of a first ion alkali ion and **subsequently** processing the substrate by the use of a second alkali ion. It is here understood that the disclosed immersion in a molten mixture or solution of the two alkali ions does not anticipate the claimed process indicating a discrete first process step and a discrete **subsequent** second step.

Aratani teaches a method for strengthening a glass substrate having a thickness of about 1.0mm by chemical strengthening. As set forth in Example 1 (Column 8, Lines 39-53), the immediate reference teaches that,

"The sample disks were immersed in a bath of molten sodium nitrate...The sample disks taken up from the bath were left to cool down and were washed with water to remove adherent sodium nitrate and dried.

After the above treatment with sodium nitrate, all the sample disks were immersed in a bath of molten potassium nitrate....The samples taken up from the molten potassium were left to cool down, washed and dried."

The Aratani disclosure clearly sets forth a two step process wherein a glass substrate is process with a first alkali ion of a first molten salt containing sodium nitrate and followed with a subsequent treatment using a second alkali ion of a second molten salt containing potassium nitrate. Aratani teaches that thin float glass substrates tend to severely warp during chemical tempering or strengthening and that "the principle cause of such warping is presumed to be diffusion of tin, or an alternate metal, used as the molten metal in the float process into the glass surface which is in contact with the

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surface of the molten metal bath" (column 1, Lines 61-68). The reference further indicates that the two step treatment "is remarkably effective for suppression of warping of float glass by ion exchange strengthening treatment" (Column 3, Lines 16-47). Since the Aratani process utilizes substantially the same materials in a substantially identical process, said two step process is implicitly understood to first "produce compression stress on a surface of the glass substrate and to produce tensile stress in a depth of the glass substrate" and second to "increase the compression stress of the surface of the glass substrate and to reduce the tensile stress of the depth of the glass substrate" as claimed.

It would have therefore been obvious to one of ordinary skill in the art at the time of the invention to modify the single mixture (60% potassium nitrate/40% sodium nitrate) chemical strengthening process set forth by Takahashi with the two step process as taught by Aratani. This modification would have been obvious to one of ordinary skill seeking to minimize the degree and severity of warping in a planar float glass substrate incurred during the chemically strengthening process.

Response to Arguments

Applicant's arguments filed February 12, 2007 with respect to claims 1-4 and 6 have been fully considered but they are not persuasive.

In response to applicant's arguments against the Takahashi and Aratani references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re*

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Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

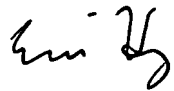
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLL


ERIC HUG
PRIMARY EXAMINER